CLAIM AMENDMENTS

Please amend claims 1 and 14 as follows:

1. (Currently Amended) A temperature compensation method for a physical property sensor, said method comprising the steps of:

locating a bridge circuit on a physical property sensor substrate wherein said bridge circuit comprises a plurality of components, including at least one heating element and a plurality of resistors, including at least one compensating resistor for compensating a temperature coefficient of resistance of said at least one heating element and a temperature coefficient of resistance of said plurality of components and a temperature dependence of a physical property thereof;

simultaneously driving an imbalance of said bridge circuit to a zero value and a supply voltage thereof to a level required to stabilize said heating element at a required temperature rise above an ambient temperature, wherein said heating element comprises a thin-film heating material; and

dynamically compensating for a temperature coefficient of resistance of said thin-film heating material and said ~~a~~ temperature dependence of said plurality of components of said bridge circuit components and said ~~a~~ temperature dependence of a physical property thereof, utilizing said at least one compensating resistor of said bridge circuit.

2. (Original) The method of claim 1 further comprising the step of configuring said bridge circuit to comprise a Wheatstone Bridge circuit.

3. (Original) The method of claim1 further comprising the step of modifying said bridge circuit to comprise at least one other compensating resistor.

4. (Original) The method of claim 1 further comprising the step of increasing a resistance value of said at least one compensating resistor to compensate for a temperature dependence of a physical property value.

5. (Original) The method of claim 4, wherein said physical property value comprises a value of at least one of the following: thermal conductivity, specific heat, compressibility, octane number, heating value, speed of sound, and viscosity.

6. (Original) The method of claim 1 further comprising the steps of:

measuring a heater power of said heating element at an approximately constant temperature rise above said ambient temperature, wherein said approximately constant temperature rise varies with said ambient temperature to compensate for a combined effect of said thin-film heating material, said components of said bridge circuit, and a fluid property to be measured by said physical property sensor.

7. (Original) The method of claim 1 further comprising the step of minimizing a change in a bridge voltage of said bridge circuit as said ambient temperature is varied over a required range by an optimal choice of a value of said compensating resistor.

8. (Original) The method of claim 7 further comprising the step of selecting said bridge voltage as a supply voltage generated by an amplification of a bridge circuit

imbalance, such that said bridge voltage serves as a sensor output signal of said physical property sensor

9. (Original) The method of claim 7 further comprising the step of selecting a bridge voltage as a voltage of said heater element, such that said bridge voltage serves as a sensor output signal of said physical property sensor.

10. (Original) The method of claim 1 wherein said bridge circuit comprises a front-end analog circuit of said physical property sensor.

11. (Original) The method of claim 1 wherein said physical property sensor comprises a gas property sensor.

12. (Original) The method of claim 1 wherein said physical property sensor comprises a liquid property sensor.

13. (Original) The method of claim 1 wherein said physical property sensor comprises a solid property sensor.

14. (Currently Amended) A temperature compensation method for a physical property sensor, said method comprising the steps of:

locating a bridge circuit on a physical property sensor substrate wherein said bridge circuit comprises a plurality of components, including at least one heating element and a plurality of resistors, including at least one compensating resistor;

simultaneously driving an imbalance of said bridge circuit to a zero value and a supply voltage thereof to a level required to stabilize said heating element at a

required temperature rise above an ambient temperature, wherein said heating element comprises a thin-film heating material;

dynamically compensating for a temperature coefficient of resistance of said thin-film heating material and a temperature dependence of said plurality of components of said bridge circuit components and a temperature dependence of a physical property thereof, utilizing said at least one compensating resistor of said bridge circuit, wherein said physical property includes at least one of the following: thermal conductivity, specific heat, compressibility, octane number, heating value, speed of sound, and viscosity;

increasing a resistance value of said at least one compensating resistor to compensate for a temperature dependence of a physical property value, wherein said physical property value comprises a value of at least one of the following: thermal conductivity, specific heat, compressibility, octane number, heating value, speed of sound, and viscosity;

minimizing a change in a bridge voltage of said bridge circuit as said ambient temperature is varied over a required range by an optimal choice of a value of said compensating resistor; and

selecting said bridge voltage as a supply voltage generated by an amplification of a bridge circuit imbalance, such that said bridge voltage serves as a sensor output signal of said physical property sensor.

15. (Original) A temperature compensation system for a physical property sensor, comprising:

a bridge circuit comprising a plurality of components, including at least one heating element comprising a thin-film heating material and a plurality of resistors, including at least one compensating resistor;

a physical property sensor substrate wherein said bridge circuit is located on said physical property sensor substrate and wherein an imbalance of said bridge circuit is driven to a zero value while a supply voltage thereof is simultaneously driven to a level required to stabilize said heating element at a required temperature rise above an ambient temperature; and

a compensator for dynamically compensating for at a temperature coefficient of resistance of said thin-film heating material and a temperature dependence of said plurality of components of said bridge circuit components and a temperature dependence of a physical property thereof, wherein said compensator comprises said at least one compensating resistor of said bridge circuit.

16. (Original) The system of claim 15 wherein said bridge circuit comprises a front-end analog circuit of said physical property sensor and wherein said bridge circuit further comprises a Wheatstone Bridge circuit.

17. (Original) The system of claim 15 wherein said bridge circuit to comprise at least one other compensating resistor.

18. (Original) The system of claim 15 wherein a resistance value of said at least one compensating resistor is increased to compensate for a temperature dependence of a physical property value.

19. (Original) The system of claim 18, wherein said physical property value

comprises a value of at least one of the following: thermal conductivity, specific heat, compressibility, octane number, heating value, speed of sound, and viscosity.

20. (Original) The system of claim 15 wherein a heater power of said heating element is measurable at an approximately constant temperature rise above said ambient temperature, wherein said approximately constant temperature rise varies with said ambient temperature to compensate for a combined effect of said thin-film heating material, said components of said bridge circuit, and a fluid property to be measured by said physical property sensor.